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BUREAU OF ENTOMOLOGY

FOREST INSECT INVESTIGATIONS

PLAN OF OPERATION

BIG HOLE BASIN INSECT CONTROL PROJECT

Season of 1928

GOVERNMENT PRINTING OFFICE

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PLAN OF OPERATION

BIG HOLE BASIN INSECT CONTROL PROJECT

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Contents.

	Page
DIVISION OF AREA INTO WORKING UNITS	1
OVERHEAD ORGANIZATION	2
WORKING UNITS	3
CAMPS	4
SPOTTING	5
TREATING	7
TRANSPORTATION	10
EQUIPMENT	11
SAW FILING	17
WAGES	17
KEEPING OF RECORDS	19
FORMS	26-36

PLANS FOR WORK

Insect-Control Project
Beaverhead National Forest - 1928

In preparing plans for insect control work on the Big Hole project, Beaverhead National Forest, for the spring of 1928, the smaller details have been omitted, but at the same time sufficient information and suggestions have been included so as to make the plan of the most use to the men who administer the work on the ground. It also must be comprehensive enough to permit those reading it to form a fair opinion of just what is planned for the season of 1928.

With these things in mind a map of the Beaverhead Forest accompanies the plan which shows:

1. The boundaries of the working units
2. Headquarters of the working units
3. Project headquarters
4. Approximate location of probable camp sites

Discussing these briefly in their order.

No. 1. It will be seen by reference to the map that the area to be covered by control work next spring has been roughly divided into five working units, the approximate boundaries of which are shown by a blue line. Each unit is numbered. No. 1. Wise River unit, No. 2 East Side unit, No. 3 Northwest unit, No. 4 West Side unit, and No. 5, the Battlefield unit.

This plan is made up and presented on the basis of expending $100,000 on the project during the spring of 1928. The actual work

should be commenced May 1, earlier if possible and concluded about June 30, 1928.

Overhead Organization

The general plan is to establish a project headquarters at Wisdom, Montana. Here will be the project office and warehouse. This will be the headquarters of the forest officer in charge of the project and of Mr. Evenden who will have charge of the spotting and such matters as concern the Bureau of Entomology. The forest officer in charge of the project will probably need:

1 first-class project clerk

1 stenographer

1 warehouse man

1 assistant warehouse man

2 truck drivers.

The project clerk will be a busy man on this job and in order that the officer in charge of the project need not spend his time on small details, it is necessary that a good experienced clerk be assigned to this job. He should be capable of taking complete charge of the office and warehouse. He must build up and maintain a system for the most feasible keeping of necessary records, keep all field reports currently posted, attend to the ordering, buying, vouchering, filling of orders received from the field, etc. A clerk such as Allen of the Coeur d'Alene or Marsh of the Flathead is the type of man required.

A stenographer will no doubt be needed and if required should be furnished. A good standard Underwood typewriter should be provided.

A warehouse man who is experienced could be used to great advantage and would simplify matters for the project clerk. Such a man acting under the direct supervision of the project clerk should be placed in charge of the warehouse. The duties of this man would be to attend to the transportation of supplies and equipment to the different unit headquarters, and to handle all local purchases. Steppler of the Blackfeet, or Hunter of the Coeur d'Alene would be excellent men for this position. An assistant warehouse man if needed could be selected from a temporary list.

The Bureau of Entomology will look after the spotting crews, organizing, assignment of area and supervision. The representative of the Bureau will probably need two men to assist him. These men need not be technically trained but must be good, industrious men, capable of doing the work assigned to them. The selection of these men should rest with this representative.

Working Units

Each working unit, with the possible exception of Unit No. 5, will be placed directly in charge of a unit manager. This unit may be administered directly from headquarters since it is very accessible by roads and the infestation is not heavy as compared with the other units. It may, however, prove more practicable to place it under a manager, and if so, will be done. The unit managers will be in charge of organizing and maintaining all camps and crews within their respective units, and will be directly responsible to the officer in charge of the project.

They may have from 6 to 10 camps and from 100 to 200 men to establish and organize into the most efficient working units. These unit managers should, therefore, be forest officers. They should preferably be selected from the more experienced ranks of field men. Those who have in the past proven the most efficient in the organizing and handling of large fire crews should be selected for these jobs. It is recommended that as many as possible of the forest officers who had experience last season be returned to the work in 1928.

Camps

It is believed that in the interest of economy we should plan on larger and fewer camps. In many cases it may not be possible to put in the larger camps on account of a small number of trees within a given camp area, or for other reasons. However, when possible we should plan on having at least 20 men in a camp and preferably about 30. This will simplify transportation and will lower overhead costs appreciably. It is believed to be more economical to run a 30-man camp and move it once during the season than to maintain a camp of 15 to 20 men, even though it need not be moved. Overhead costs may be lowered and more forest officers will be available for camp managers.

Each camp will be directly in charge of a camp manager. It is hoped that as many of these as possible will be forest officers; however it will probably be impossible inasmuch as there will be at least 30 camps. Where forest officers are not available it will be necessary to select competent temporary men for camp managers. The camp manager will have

direct charge of the camp and will act as crew foreman for one of the control crews. The other control and spotting crews in his camp will be in charge of foremen who will be responsible to him. He will have the supervision of the camp organization and will be responsible for submitting of all the reports due from his camp. The cookhouse and all other matters pertaining to the camp administration will be under his direction. He will report and be directly responsible to the unit manager.

The spotting crews assigned to his camp will be first organized, started out and, if necessary, trained by the representative of the Bureau of Entomology or one of his men. Areas to be spotted will be assigned to them from time to time through the camp manager. These crews however will be in charge of the camp manager and it will be understood they are to receive orders from him and are expected to assist the other crews in the moving and establishing of camps, treating, miscellaneous work or in fact whatever is instructed by the camp manager. Care must be taken not to have too many bosses and the officer in charge of the project and the consulting entomologists must ordinarily deal with the unit manager. Although it is recognized that at times it will be necessary for the entomologist and project manager to discuss matters directly with the spotting and treating crews, it should be avoided whenever possible.

Spotting

There will be no marked changes from the methods of spotting as followed in the past. Some changes have been instituted in the hope

that the weaker parts of the method will be strengthened and a greater production secured. Tests will be made to determine the size spotting crew which will be most efficient and economical to maintain.

The areas worked by spotting crews will be covered by a 100% survey. The chief of party will be responsible for the compass work, the pacing, construction of a map showing the numbers and location of infested trees, and the proper marking of trees for treatment. Each spotter will be responsible for the location and marking of all infested trees within a strip one chain wide on one side and parallel to the compassman. Each infested tree will be marked with a white cloth tag, 4 x 6 inches, on which will be written, with lumberman's crayon, the crew symbol, the tree number, and a place for the S.D. (stump diameter), and the L.T. (length treated). Each spotter will carry his own supply of tags which, with the exception of the tree number, will have been previously prepared in camp. As the tags are prepared each spotter will place his initials in the lower right-hand corner. When an infested tree is located he will ask the chief of party for a tree number which he will write upon the tag. The tags are fastened to the trees with a tack in each upper corner. When a group of infested trees is located all of the spotters will assist in the marking, securing a number from the chief of party as each tree is found. The chief of party, in addition to the map of which two copies will be required, will keep the "Spotter's Daily Report", and the "Spotter's Weekly Report". A discussion of these forms will be found under the subject "Forms".

In areas where it is found that the infestation is of sufficient intensity, the task of providing a control crew with infested trees will be assigned to one man. His duty will be to locate all of the infested trees in the section assigned to the control crew. He will provide the crew foreman with suitable maps showing the location and number of the infested trees. The infested trees will be marked with the cloth tag, used by the spotting crews, with the same data. He will keep the regulation "Spotter's Daily Report", and will prepare each week the "Spotter's Weekly Report". It is not known as to what extent this method can be used, but whenever feasible it will be inaugurated.

Areas where there is not sufficient infestation to justify control, will be eliminated from the project by the entomologist. As far as possible the areas ahead of the spotting crews will be extensively scouted and all possible assistance given in the training and supervision of this work.

Treating

Treating crews were organized last spring on the basis of 1 foreman, 2 sawyers, 4 laborers and 1 skidding horse, a total of 7 men and 1 horse, all considered as productive. From our experience, it is now believed that crew will treat practically the same number of trees per day if a crew of 6 men and 1 horse is used. In some areas where infested trees are well scattered this organization could perhaps

be further reduced to a total of 5 men. We should not be adverse to experimenting on anything which seems to offer a good chance for improvement.

Treating work will be carried on during the spring of 1928 through the use of methods very similar to those in use last spring. The majority of the trees will be felled, cut into logs 12 to 16 feet long, piled in decks and burned. The slash will be burned also. This will in so far as possible be piled on top of the log piles before burning and where not possible it will be piled in individual piles and burned. The slash will not be raked or cleaned up too thoroughly so as to result in undue expense, a small amount of slash scattered here and there being considered as no material menace. The infested length will be determined by the presence of sap blue stain. All trees will be treated to a point above the blue stain..

It will be the plan to treat as many trees as possible by burning them standing. This will be done when the trees are suitable for this form of treatment and when it will not result in damage to adjoining trees and young growth. The idea of using this method is to increase production and consequently lower costs, as it is more economical for some trees than to fell, pile and burn. This method should be especially applied to large, rough, heavy-limbed trees standing in or near openings which are most expensive to treat by the other method and where it can be done with minimum damage to other growth. Costs of treating must be lowered wherever possible and a continuous lookout should be made for an opportunity to do so.

We should not lose sight of the possibilities offered in gyppo work. From our experience of last season and the records kept, it is believed possible to gyppo treating work on either the basis of the tree or per stump diameter inch, using separate prices for trees felled and treated and for those burned or treated standing. It is thought this can be done on a basis equitable to both sides and even though the actual labor cost per tree is as much as by day work, the cost will be less, since the production per man may be increased 15 to 25%, which would result in a reduction of 1/3 to 1/2 of the direct overhead. Gyppo crews should probably consist of about four men and a horse. No crew foreman would be required but one good foreman working for the Forest Service could look after two to four such crews. After these crews were started and somewhat accustomed to the work, one foreman could handle 4 crews if not too far apart. He would have to visit each crew every day, inspect their work, and measure or count up the trees they had treated. He would keep a daily record of their work in a small scale book, showing for each crew the number of trees treated, their tree numbers, and the number of stump diameter inches. The gyppoes should be boarded by the Service at the rate of $1.00 per day and a loss of 50¢ per day per man on board figured. Also each gyppo crew should be provided with necessary tools and a horse furnished and fed. These expenses of loss on board, tools, horse, etc., should be considered in figuring the gyppo price to be paid.

We have found that by day work the actual labor cost per tree based on effective time worked is about 6¼¢ or 4⅓¢ per stump diameter inch. At this season there will be lost time and it should be understood that when called upon the gyppoes will work as a crew under the camp manager at the rate of $4.00 per day while moving and setting up camp. Therefore the gyppo price to be offered for treating is for all trees felled and treated 65¢ per tree or 4⅓¢ per diameter inch, and for all trees treated standing 40¢ per tree or 3¢ per diameter inch. In addition, skid horse and tools will be furnished and maintained. To this price a bonus of 5% may be added when a certain unit or area contracted is completed.

Transportation

From experience on this project during the spring of 1927, it is believed that no definite method of transportation can be relied on. Last spring on account of bad road conditions where we planned the use of motor trucks, it was necessary to use 4-horse teams with wagon, and where a team and wagon was planned, it was found expedient to use pack horses. For the spring of 1928 we will plan on definite use of trucks between Divide and Wisdom. We will use trucks whenever we can in distributing out of Wisdom to unit headquarters and other camps that may be reached by road, and when roads will not permit, we will resort to team and wagon. On the working units, we consider the most of the work will have to be done with pack stock and it will be the plan to engage and have on hand sufficient pack stock to carry on the work to best advantage.

The transportation between Divide and Wisdom and the distribution of supplies and equipment out of Wisdom to the working units will be in charge of the project manager or his project clerk. The transportation on the working units, which will largely be pack stock, will be in charge of the unit manager.

It is quite likely better records and costs on transportation should be had. If so, a form of daily report to be made up by each truck driver, tote teamster and packer should be furnished and required to be submitted to the project office at the end of each week. Under "Forms" such blank reports are presented and their use urged.

Equipment

The equipment used last year was probably more complete and better than we have had in former years. It is suggested that a number of changes be made and some additional equipment put into use.

1. Kitchen. It is thought each camp should be provided with preferably a 14x16' tent for a cookhouse. Another tent 14x16' or 16x16' for a dining tent and a 10x12' tent for cooks sleeping quarters. Tent flies are a poor shelter for dining tables at the season used in this region, since it is cold, snowy weather and a high wind blowing a large part of the time. Each kitchen should have an Admiral stove for cooking and a Kimmel fire box to be used for heating water and such work. The Kimmel cook stove is not satisfactory on this job, since due to cold weather

they cannot be kept at anywhere like an even temperature and are useless for baking purposes. The building-up and banking-up of a setting for them so they can be used at all is expensive and would pay for the difference in cost between these and the Admiral in two seasons' work. Better cooking will be done and less food wasted.

One 25-man K&M outfit should be used in each kitchen and sufficient dishes and equipment added thereto so as to conveniently care for any additional number of men whom there may be in the crew.

2. Bunk tents. A 14x16' tent should be figured for each 5 or 6 men or a 16x16' for 6 men. In addition the camp manager should have a 10x12' tent as his office tent, equipped with a bed for himself and an extra bed made up so as to provide for the unit manager or anyone of the overhead who may need to stop at his camp over night. A stove should be set in each tent, either a Sibley or a Kimmel fire box. Each should be provided with 4 elbows and 7 joints of pipe so the pipe may be run out under ground and come up outside the tent.

3. Beds. Each bed should consist of 1 tarpaulin, 4 single wool and 1 double wool blanket and a single width cot mattress.

4. Tools. Each treating crew needs 2 crosscut saws 5½' long with handles, 1 axe to each man 3½ lb., except teamster,

one 4 lb. single jack hammer and 1 felling wedge, 1 canthook 2½ x 4' handle, one 2½ gallon water bag, and the man doing the burning should have one good garden rake or Rich fire tool for use in raking in the duff when it becomes dry enough for fire to run on the surface litter. In addition, each crew should have 1 large horse, not less than 1400 lbs., shod up and equipped with a good harness, single tree, skidding tongs and a 5/16 chain about 8 to 10 feet long with a chain hook on one end and a round hook on the other. The single tree should have a swivel grab hook and the tongs equipped with a flat ring hitch.

Unit Headquarters

Unit headquarters camps will be the same as other camps except probably an extra tent needed as an office tent and an extra tent for supplies, wherever buildings are not available. It is planned to arrange phone connection to each headquarters by use of emergency wire. All orders for men, supplies, and equipment for a unit will be sent direct by the unit manager to project headquarters at Wisdom. All camps to which trucks or teams can not be reached directly from Wisdom will be supplied by pack train from the unit headquarters. It may be necessary to maintain a commissary box at each unit

headquarters, but it is thought and hoped the commissary can all be handled by the project office at Wisdom by inducing the men to order their needs about a week in advance.

Camps should ordinarily consist of not less than 25 men and preferably 30 if the number of infested trees on a given camp area is sufficient to warrant this size camp without requiring more than one move during the season.

An equipment list is given based on a standard of a 25-man camp. This must be increased or lowered if camps are larger or smaller. A 25-man crew will ordinarily consist of 1 cook, 1 flunkey, 5 spotters, and 18 treating crew men.

General Camp Equipment

1 tent, cook, 14x16'
1 tent, dining, 14x16'
1 tent, cook's, 10x12'
1 tent, manager, 10x12'
4 tents, sleeping, 14x16' or 16x16'
26 mattresses, 3'x6'6", cotton slab
26 beds, 1 tarp
4 single wool
1 double wool
7 stoves, heating, Sibley or Kimmel box
50 joints, stove pipe
28 elbows for pipe
1 grind stone, army
24 files, 8", flat
1 hammer, claw
1 saw, carpenter's
1 mattock
1 first-aid kit, F.S. Standard

5 lbs. hay wire
10 lbs. 10d nails
20 lbs. 30d nails
1 lantern, Coleman's gas.
6 dozen candles
1 saw filing outfit
1 cobbler's outfit
2 wash tubs
2 wash boards
6 wash basins
6 water pails, 12 qt.
10 gallons coal oil
10 gallons gasoline
2 wool sacks
1 mail sack, canvas

KITCHEN EQUIPMENT

1 25-man K & M outfit complete
1 brush, scrub
1 broom
1 chopper, food
1 pancake turner
2 pots, 8 qt. with covers
4 pails, 14 qt.
4 dippers, 1 pint
2 pots, coffee, 3 gal.
6 basins, 4 qt.
6 basins, 2 qt.
6 basins, 1 qt.
24 soup bowls
24 tin cups
24 tin plates
24 knives
24 forks
24 spoons, tea
4 pitchers, syrup
4 pitchers, water
2 pots, coffee, 4 qt.
1 canvas meat sack, 4'x8'
2 lanterns, Coleman's gas.
1 Admiral cook stove
5 joints, 6" pipe
1 Kimmel, fire box
7 joints, 5" pipe
2 stove pipe collars, asbestos
1 hammer, claw
1 axe, D.B. 3½#
1 table top, canvas roll, 16'
1 table top, canvas roll, 12'

SPOTTING CREW EQUIPMENT

5-man crew

1 compass, F.S. Standard with staff
1 tally register
1 map of forest area, ½" scale or larger
25 1 pad, 50 map sheets 878
1 aluminum holder, 8½x11
4 army canteens, quart size
3 5 hand axes, with sheaths
10 lbs. tacks
3000 cloth tags, 4"x6"
1 doz. pencils and erasers, 4H
2 blue pencils
2 red pencils
2 green pencils
2 yellow pencils
Carbon paper
1 box lumber crayon, soft black
1 canvas carrying case

Spotters equipment may be made up into crew outfits and placed in the canvas carrying case. A spotter's outfit would therefore consist of:

1 carrying case and contents
5 hand axes with sheaths
4 canteens, 1 qt.
1 compass, case and staff
1 tally register
10 lbs. tacks
3000 cloth tags.

These will be made up at the project warehouse and sent into the field as a unit, when ordered by the unit manager.

TREATING OR CONTROL CREW EQUIPMENT

Based on crew of 6 men and 1 horse

2 saws crosscut, 5½' with handles
5 axes, D.B. 3½ lb.
1 shovel, L.H.R.P.
2 2½ gallon water bags
1 single jack, 4#
1 wedge, felling, 2#
3 carborundum stones, round pocket
1 canthook, 2½" x 4' (2 if wanted)
1 coffee pot, 2 gal. For crew lunches
1 skidding horse, 1400#, shod all around
1 harness
1 skidding chain, 8' to 10'-5/16", 2 hooks
1 skidding tong, light cedar
1 single tree

Filing. The proper filing of saws offers somewhat of a problem. Last season we tried to secure sawyers who could file their own saws and paid them 50¢ per day extra. This plan was not entirely successful as many men claimed to be filers who were not at all satisfactory. The plan would be all right if it were possible to get good sawyers who could file their own saws. It may be more satisfactory if 2 to 3 control crews can be assembled in a camp, to hire a filer who could file for two or three camps, and pay the sawyers but $4.00 per day or the same wage as other men receive. The few good sawyer-filers whom we know can be placed in out-of-way camps to saw and do their own filing.

Wages. It is planned to pay wages as follows:

Crew foremen $100.00 per month and board. Temporary men

Cooks $100.00 per month and board. 1 to 12 men inc.

Cooks $125.00 per month and board. 13 to 50 men inc.

Flunkies	$ 60.00 per month and board, 13 to 20 men inc.
Flunkies	$ 70.00 per month and board, 21 to 50 men inc.
Chief Spotters	$100.00 per month and board. Temporary men.
Spotters	4.00 per day, charge $1.00 per day board
Laborers	4.00 per day, charge $1.00 per day board

Forms. Practically the same forms will be in use as last season. Some have been slightly altered, and a spotter's daily record, truck and horse report have been added. The production records, cost keeping forms, etc., planned for use are given in the following pages with a brief discussion covering the use of each. It is important that all reports be submitted promptly. These reports are required by the project manager for the compilation of production records. Reports should be prepared promptly and forwarded at the first opportunity.

KEEPING OF RECORDS

Sample forms for the keeping of cost and production records are submitted with this report. The importance of these records was discussed in last year's plan so but a brief discussion of each form and its use follows.

Forest Service Form D.1-39.

This form is to be used by the project clerk or warehouse man in keeping the record of the supplies sent to each unit, by unit manager in keeping a record of supplies distributed to his various camps, and by the camp managers in submitting their invoice of supplies on hand on the 15th and last day of each month. This form should be executed in duplicate so that the camp manager can be supplied with a copy which will show him the supplies which he has received. From these two records the cost per meal for each period can be secured. Form is shown on page 26.

Insect Control Form "A".

This form is used by the camp manager in submitting a weekly report of the activities of his camp. On this form he will keep a daily record of trees treated by each crew and the number of effective man-days for each crew; the number of meals served each day in camp which should check with the time slips, the amount of noneffective labor, total effective man-days and grand total of man-days during the week and remarks relative to personnel, equipment needed, etc. This form is shown on page 27.

Insect Control Form "B".

This form is used by the crew foreman in submitting daily record of the trees treated by his crew. Tree numbers, stump diameters, and length treated will be shown in the proper columns. These data are secured from the tags taken from the treated trees. These tags should be kept separate for each day and forwarded with the daily reports to project headquarters through the unit manager's headquarters as often as possible. Infested trees missed by the spotters but located by the crew foreman and treated are called extras. The same data are recorded in the daily report and the trees numbered X 1, X 2, X 3. A daily report will be submitted for each and every day of the week, regardless of whether any trees are treated, showing across the face thereof just what was done, as "Rain, no work", "Moving camp", etc. Form is shown on page 28.

Insect Control Form "C".

This form is used by the project clerk to tabulate the weekly production record of each treating crew. The explanation of this form follows.

MAN-DAYS.

Per Day - Number of man-days actually contributing to each day's output. Time put in on fire suppression, piling and burning or other labor resulting from actual control work must be charged against that day's output.

Total for Project - Secured by bringing forward the number of man-days for each day. This total is carried forward for each week.

TREES TREATED.

Per Day - Number of trees actually treated each day.

Total for Project - Secured by bringing forward the number of trees treated each day. This total is carried forward for each week.

Per Man-Day per Day - Secured by dividing the actual number of trees treated each day by the number of man-days actually contributing to the daily output.

Per Man-Day per Week - Secured by dividing the total number of trees treated by the total number of man-days. The form is shown on page 29.

Insect Control Form "D".

This form as shown on page 30 is for the weekly summarizing of the results accomplished by the different crews of each unit. It will be prepared each week by the project clerk from data contained on report "C", one for each working unit and a copy sent to each unit manager.

Insect Control Form "E".

This form shown on page 31 will be used by the chief of spotters and is for the purpose of keeping a record of the tree numbers used. The numbers, which are kept consecutive by each spotting crew, will be placed upon this form prior to going into the field, and as the spotters call for a number it is checked off in the column captioned "S" (Spotted). This form is prepared in duplicate. The original will go to the camp manager, and the duplicate to project headquarters.

This camp manager will check the tree numbers on this form in the column marked "T" (Treated) against the tags turned in by each crew foreman, which will show if all trees have been treated. As soon as these sheets have been completely checked, or an area treated, they will be forwarded to project headquarters.

Insect Control Form "F".

This form is prepared by the chief of each spotting crew for the purpose of reporting to the unit and project managers the results accomplished during the past week as well as general information relative to the amount of territory remaining to be covered from the present camp and the amount of time required. Suggestions as to the location of the control camps in order that they may be centrally located to the trees marked and information relative to the moving of the spotters' camp should also be included. Each week the report will be prepared in duplicate, a copy forwarded to the unit manager and one to the project manager. Form is shown on page 32.

Marking Tags.

A sample of the tags used in marking the trees for treatment is shown on page 33. This tag is made from sign painter's cloth and should be approximately 4x6 inches in size. The tags will be prepared so as to show the symbol of the spotting crew, the tree number, the stump diameter and length treated. These data will be placed upon the tag by each spotter prior to going into the field, with the exception of the tree number which is put on in the field so as to correspond with the number assigned by the chief spotter.

Maps.

The spotters' maps to be prepared as outlined under caption "Spotting" will show data about as outlined on Form 878 shown on page 34

of this report. Care should be taken to have these maps made up so as to avoid confusion. Only one section or part thereof should be shown on one sheet. If desired to show a part of two sections, two separate sheets should be used. Only the necessary data should be shown and the little details which are of no real value but do tend to complicate the reading of the maps should be left off.

Truck Report

A form of daily truck report is shown on page 35 which is to be made up daily by each truck driver, whether on a hired or government owned truck and turned in to the warehouse man. The warehouse man will be responsible for seeing to it that these reports are turned in to him by the truck drivers and he should assist them in the correct distribution of load weights between the three captions, Equipment, Supplies, and Forage. He will file and summarize these as directed by the project clerk. These reports are the same as Form D.1-33 for this purpose, except provision is made to show the weight separately for Equipment and Supplies. These should be used for tote teams, also leaving off information beginning with "Gas used". This information may also be eliminated from reports covering trucks hired by trip, day or contract piece per hundred weight.

Horse Report

In order to figure transportation costs more reliably and especially be able to know what has been packed and the amount of equipment and supplies separately, there is also given on page 35

a pack horse daily report. This has been constructed so as to permit the distribution of packing expense between transportation of Equipment, Supplies, and Forage. Packing reports will be made up daily by the packer and turned in at the end of each week to the unit manager, who will forward them to the project office. Subsistence supplies will be included under "Supplies", hay and oats under "Forage" and all tools, equipment, commissary, etc. under "Equipment". Time and expense of pack horse miles light and of packer and his saddle horse will be charged back against the load when these reports are summarized in the office.

Cost Keeping

The matter of keeping costs and records on insect control work is one that needs some attention. The methods used in this should be standardized for the district so that each project will keep its records under the same system and set up the same items of cost. In this way not only will a better analyzation of costs be possible but it will also be possible to compare costs between projects.

With the foregoing production and cost records and the use of I. C. Form H, which is a summary of cost keeping the same as used last season, it is believed an efficient clerk will have no trouble in keeping the records in good shape. If an experienced clerk is on the job he may desire to revise this or possibly add to it. If so, this should be satisfactory so long as all items of cost desired can be furnished. At present we should standardize on this form until some man having accounting experience has devised something better.

Respectfully Submitted

James L. Evenden
Associate Entomologist

C. A. Webb.
Logging Engineer.

December 14, 1927.

FORM D. 1-39
(Revised Jan., 1926)

ORIGINAL

REQUISITION AND INVOICE

Order No. _____

_____ FOREST

Ordered by _____

Date of order _____

To _____ District

Destination _____

APPROPRIATION

Charge ____ % _____ FY 192

Charge ____ % _____ FY 192

Charge ____ % _____ FY 192

Charge ____ % _____ FY 192

Item	Unit	Amount ordered	Amount shipped	
Flour:				
White, 3/25-lb	Bale			
Graham, 9-lb	Sack			
Leavening:				
Soda	Lb			
Yeast, 5-ck	Pkg			
Baking powder	Lb			
Cereals:				
Rolled oats, 9-lb	Sack			
Farina, 9-lb	Sack			
Cornmeal, 9-lb	Sack			
Cornstarch	Lb			
Rice, 3-lb	Sack			
Meat and Lard:				
Ham, 12–14 lbs	Lb			
Bacon, 8–10 lbs	Lb			
Roast beef, 24/2	Case			
Roast beef, 24/1	Case			
Salmon, 48/1	Case			
Lard, 4-lb	Pail			
Lard, 2-lb	Pail			
Dairy Products:				
Butter, 2-lb	Tin			
Butter, 1-lb	Tin			
Milk, tall (48)	Case			
Milk, small (96)	Case			
Cheese, 1-lb	Box			
Eggs, evap., 24/2-doz	Case			
Eggs, case, 30-doz	Case			
Beverages:				
Coffee, 2-lb	Can			
Coffee, 1-lb	Can			
Tea, black, ¼-lb	Pkg			
Tea, green, ¼-lb	Pkg			
Cocoa, ½-lb	Can			
Sugar and Sirup:				
Sugar, 4/25	Bale			
Sirup, 24/2½	Case			
Vegetables:				
Beans, lima, 10-lb	Sack			
Beans, navy, 10-lb	Sack			
Beans, red, 10-lb	Sack			
Carrots, Cabbage, Onions, Potatoes — if desired	Lb / Lb / Lb / Lb			
Macaroni, 24/1	Case			
Tapioca, ½-lb	Pkg			
Vegetables, Canned:				
Corn, 24/2	Case			
Carrots, 24/2½	Case			

Item	Unit	Amount ordered	Amount shipped	
Vegetables, canned—Con.				
Beans, cut, 24/2	Case			
Peas, 24/2	Case			
Pork and beans, 72/6 oz	Case			
Pumpkin, 24/2½	Case			
Sauerkraut, 24/2½	Case			
Spinach, 24/2½	Case			
Sweet spuds, 24/2½	Case			
Tomatoes, 24/2½	Case			
Canned Fruit:				
Apples, pie, 24/2½	Case			
Peaches, 24/2½	Case			
Pineapple, 24/2½	Case			
Raspberries, 24/2	Case			
Fig jam, 24/1	Case			
Loganberry jam, 24/14	Case			
Apricot jam, 24/1	Case			
Dried Fruit:				
Apricots, 5-lb	Cart			
Peaches, 2-lb	Cart			
Prunes, 5-lb	Cart			
Raisins, 24/15-oz	Case			
Relishes, Extracts, Spices:				
Catsup, 24/1 bot	Case			
Pickles, dill, 24/2½	Case			
Pickles, dill, 6/10	Case			
Pickles, sweet, 24/2½	Case			
Vinegar, 24/22-oz	Case			
Vanilla extract, 4-oz	Bot			
Lemon extract, 4-oz	Bot			
Mustard, prepared, 9-oz	Jar			
Nutmeg, 4-oz	Can			
Ginger, 4-oz	Can			
Cinnamon, 4-oz	Can			
Pepper, black, 4-oz	Can			
Salt, 3-lb	Sack			
Soaps, etc.:				
Soap, laundry	Bar			
Soap, toilet	Bar			
Cleanser, Dutch	Can			
Chloride of lime, 14-oz	Can			
Miscellaneous Supplies:				
Matches, 20-cart	Case			
Candles (6)	Set			
Special:				

Filled by _____ Date _____ Packed by _____ Date _____

Cargoed by _____ Date _____ Received by _____ Date _____

Shipped on
Waybill or Gbl. No. _____ Date _____

Person receiving above listed items *shall* note on back of form all shortages and damaged goods.

GOVERNMENT PRINTING OFFICE 8—5341a

Insect Control Form "A"

_____ Unit _____ Camp

CAMP MANAGER'S WEEKLY REPORT

Week of _____ to _____

PRODUCTION RECORD

Day	_____ Trees Treated	Crew Man-Days	_____ Trees Treated	Crew Man-Days	_____ Trees Treated	Crew Man-Days
S						
M						
T						
W						
T						
F						
S						
Totals						

Meals Served

Day	Number
S	_____
M	_____
T	_____
W	_____
T	_____
F	_____
S	_____

REMARKS:

Noneffective Labor

	Man-Days	Remarks
Moving Camp		
Establishing Camp		
Fire Suppression		
Cutting Wood		
Cooks		
Flunkies		
Packer		
Saw filer		
Horse shoeing		
Total		
Total Effective		
Grand Total		

Signed _____
Camp Manager

Insect Control Form "B" No. _____

CREW FOREMAN'S DAILY REPORT

Camp _____ Unit _____

Date _____ Man-Days _____ Horse-Days _____

_____
Signature

Tree No.	D.B.H.	Length Treated	Tree Remarks	Tree No.	D.B.H.	Length Treated	Tree Remarks	Tree No.	D.B.H.	Length Treated	Tree Remarks

Insect Control Form "C"

CREW RECORD

Foreman - John Doe

Week of _____ to _____ 192

DAY	MAN-DAYS		NUMBER OF TREES TREATED			Remarks
	Per Day	Total for Project	Per Day	Total for Project	Per Man-Day: Per Day / Per Project	
S						
M						
T						
W						
T						
F						
S						
Total						

Week of _____ to _____ 192

S						
M						
T						
W						
T						
F						
S						
Total						

Week of _____ to _____ 192

S						
M						
T						
W						
T						
F						
S						
Total						

Insect Control Form "D"

WEEKLY SUMMARY OF CREW RESULTS

Week of _____ to _____

Per Unit _____

Crew Foreman	Effective Man-Days	Average per Man-Day Week	Job	Remarks

I.C.Form "E"

SPOTTERS DAILY RECORD

Project area Unit Camp No.

Date Spotter T. R. Sec.

S	Tree No.	T	S	Tree No.	T	S	Tree No.	T	S	Tree No.	T
✓		✓									

Insect Control Form "F"

SPOTTERS' WEEKLY REPORT

Week_____

To _____ Camp_____ Unit_____

Crew Symbol_____ Number of Men in Crew_____

Record of Trees Marked for Treatment

Date	Number of Trees	Sections or Area Worked	Remarks
S			
M			
T			
W			
T			
F			
S			
Totals:			

Remaining territory to be covered from present camp _____

Number of days required to complete present camp area _____

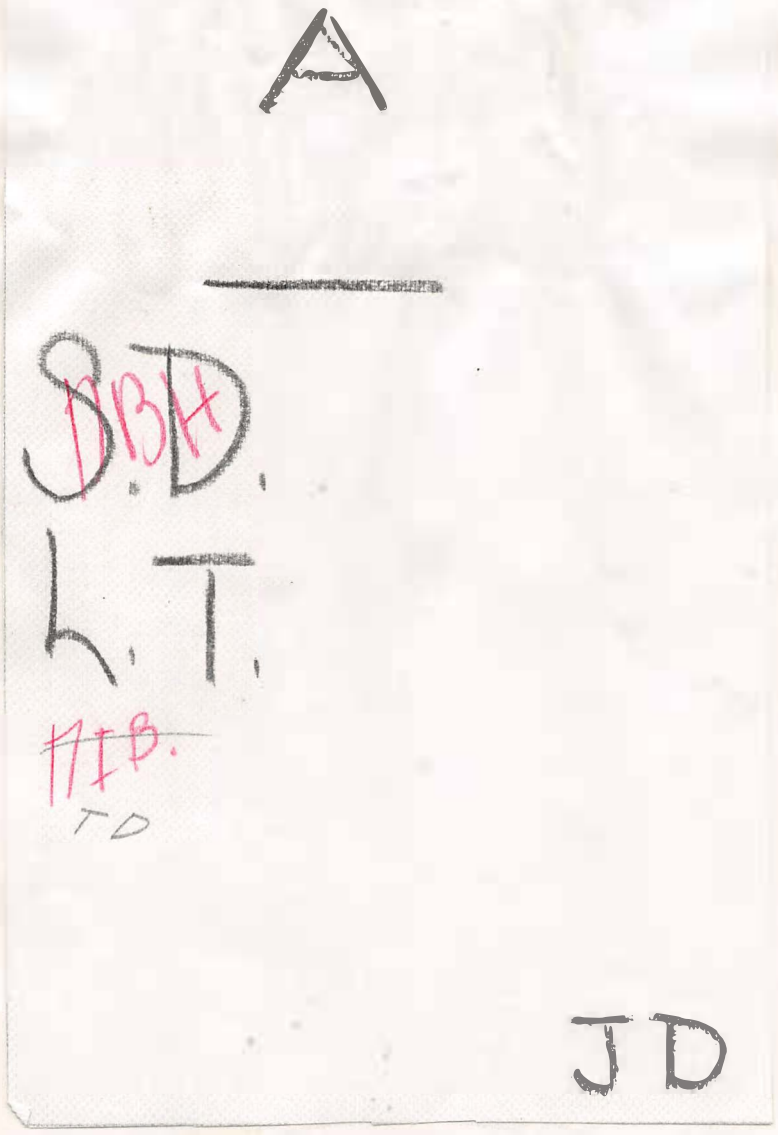
Suggestions as to location of control camp in present area _____

Suggestions as to new location for spotters' camp _____

Remarks. (Suggestions, Requirements, Etc.) _____

Signed _____
Chief of Spotting Crew

Tags used by spotters in marking infested trees for treatment.

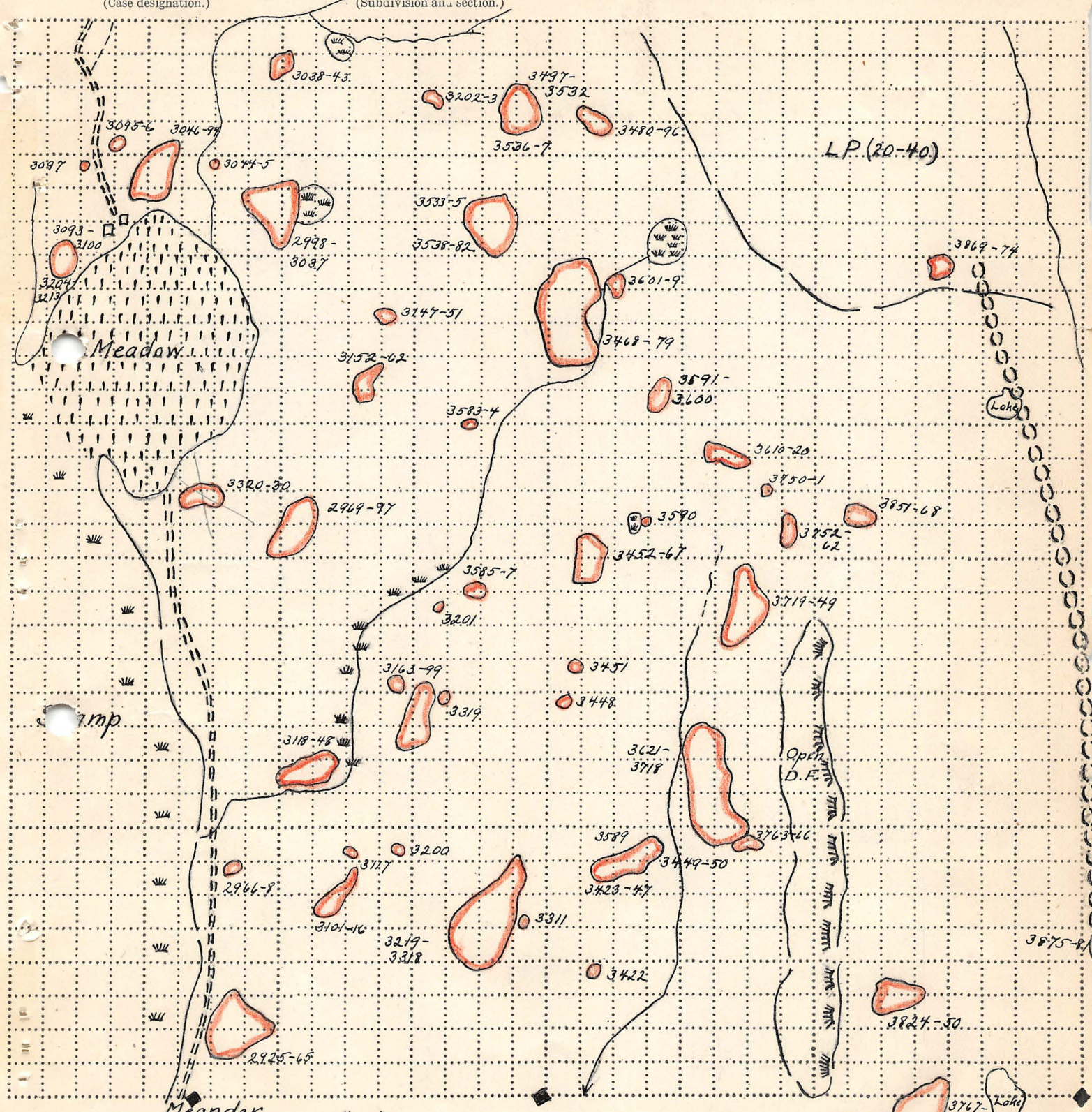


A - Crew symbol
_____Space for tree number
S.D. - Stump diameter
L.T. - Length actually treated
J.D. - Initials of spotter marking tree.

UNITED STATES DEPARTMENT OF AGRICULTURE—FOREST SERVICE

..... Land District. Mag. Declin. ..... Area ..... Acres

..... (Case designation.), 11 (Subdivision and section.) T. 1N R. 15 W Mer. Scale ..... inches = 1 mile



Field work by Crew "D", Date ....., Platted by P Bowman

Remarks: 970 Trees

..... Approved ....., 19....., ...

(Approving officer.)

Form 878
(Revised April, 1916)

8—433

I.C.Form G

DAILY REPORT-TRUCKS

Date _____

Truck-Kind: _____ Owner: _____

Trips		Miles	Weight of Load			Number	Miles
From	To	Loaded	Equipt.	Supplies	Forage	Passengers	Light

Gas used, gallons _____ Oil used, quarts _____ Grease used, lbs. _____

Tires and tubes (new or retreaded) _____

Repairs and new equipment purchased. List giving cost _____

Time on repairs by F.O. under appointment _____

Driver (F.O. or Temporary), Salary and expenses $ _____

Storage Cost _____

_____ Driver

I.C.Form H.

DAILY REPORT-PACK-HORSE

Unit: _____ Date: _____

Trips Terminals			No. Horses Light	No. Horses Loaded			Total weight Cargo		
From	To	Miles		Equip-ment	Supplies	Forage	Equip-ment	Supplies	Forage
Hdq.	Tie Cr.	7	0	3	4	0	450	800	0
Tie Cr	Hdq.	7	6	1	0	0	70	0	0

_____ Packer

I.C. Form H. "S" Insect Control National Forest Date

Identification of Account | Total | Kinds of Expenditure | Activity Costs: Direct | Activity Costs: Indirect | Deduction From Time Slips | Horse Days | Man Days

Payee or Creditor	Date	Article or Service	Est. Liability	True Total Charge	Payroll for men other than Transportation Hire of Skid Horses	Subsistence Supplies	Commissary other than meals	Horse feed Shoeing etc.	Transportation	Equipment & Supplies	Travel	Spotting	Treating	Overhead	Camp	Travel	Equipment & Supplies	Horse forage	Man Subsistence	Surveys	Telephone & Telegraph	Misc.	Commissary other than meals	For meals	Skid Horses	Pack Horses	Tote team Horses	Saddle Horses	Spotting	Treating	Overhead	Travel	Camp moving & Setting	Cooks, Flunkies, Cutting wood	Total

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
W. B. GREELEY, FORESTER

BEAVERHEAD NATIONAL FOREST
MONTANA
MONTANA PRINCIPAL MERIDIAN

1921

Scale

NATIONAL FOREST BOUNDARY
ADJACENT NATIONAL FOREST BOUNDARY
NORTH AMERICAN DATUM

Boundary of working units.
Headquarters " " "
Project Headquarters.
Approximate Location of camp sites.

I.
II.
III.
IV.
V.

Longitude West from Greenwich